

## Properties of Light and Electricity

### 4-5 The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)

#### 4-5.4 Compare how light behaves when it strikes transparent, translucent, and opaque materials.

**Taxonomy level:** 2.6-B Understand Conceptual Knowledge

**Previous/Future knowledge:** Students have not been introduced to the concept of light and how it behaves when it strikes transparent, translucent, and opaque materials in previous grades. They will further develop the concept of light traveling in waves in the 8<sup>th</sup> grade (8-6.4).

**It is essential for students to** know that light behaves differently when it strikes different types of materials.

##### *Transparent*

- A *transparent* material allows light to pass through it because it is not absorbed or reflected.
- Objects can be seen clearly when viewed through transparent materials.
- Air, glass, and water are examples of materials that are *transparent*.

##### *Translucent*

- A *translucent* material scatters or absorbs some of the light that strikes it and allows some of the light to pass through it.
- Objects appear as blurry shapes when viewed through translucent materials.
- Waxed paper and frosted glass are examples of materials that are *translucent*.

##### *Opaque*

- An *opaque* material does not allow light to pass through, light is either reflected from or absorbed by an opaque material.
- Wood, metals, and thick paper are examples of materials that are *opaque*.

**It is not essential for students to** know about the interaction of light waves with materials to make them transparent, translucent, or opaque.

#### **Assessment Guidelines:**

The objective of this indicator is to *compare* how light behaves when it strikes various materials; therefore, the primary focus of assessment should be to detect likes and differences in the behavior of light when it strikes one type of material versus another or to match types of materials to the behavior of light when it strikes them. However, appropriate assessments should also require students to *interpret* a diagram or picture containing various objects and how light behaves when striking them; *classify* various types of materials depending on how light behaves on striking them; or *exemplify* materials that are transparent, translucent, and opaque.